

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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| In re Application of: | IRANPOUR KAMBIZ JAMES MARTIN | Confirmation: | 4407 |
| Serial No.: | 10/529,192 | Group Art Unit: | 3662 |
| Filed: | Oct. 12, 2005 | Examiner: | Ian Lobo |
| For: Acoustic Ranging By Application Of Linear Period Modulated Sound | | Atty. Docket: | 2088.007000 |
| | | Client Docket: | 14.0195 PCT US |

REPLY BRIEF**Mail Stop Appeal Brief – Patents**

Commissioner for Patents
P.O. Box 1450
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Sir:

Applicants hereby submit this Reply Brief to the Board of Patent Appeals and Interferences in response to the Examiner's Answer dated May 12, 2009, for which a response was due Sunday, July 12, 2009. This Reply Brief is being electronically filed on Monday, July 13, 2009. It is believed that no fee is due, however, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be required for any reason, the Commissioner is authorized to deduct said fees from Williams, Morgan & Amerson, P.C. Deposit Account No. 50-0786/2088.007000.

I. STATUS OF THE CLAIMS

Claims 1-5, 7-21, and 23-27 are pending in the case, claims 6 and 22 having been canceled. The “final” Office Action objected to claims 10-13, 25 and 26 and rejected each of claims 1-27 on various grounds. More particularly, the “final” Office Action rejected:

- claims 10-13, 25 and 26 under 35 U.S.C. §112, ¶2, as indefinite for referring to a canceled claims;

- claims 1, 4-5, 7-9, 14-17, 20-21, 23-24, and 27 as anticipated under 35 U.S.C. §102(b) by U.S. Letters Patent 5,359,575 (“Williams”);
- claims 2-3 and 18-19 as obvious under 35 U.S.C. §103(a) over Williams in combination with “Radar/Sonar Acceleration Estimation with Linear Period Modulated Waveforms” by R. A. Altes (“Altes”) and “Own Doppler Nullification (ODN) in Sonars Using Linear Period Modulated (LPM) Wideband Signals” by Ashley, *et al.* (“Ashley”).

Applicants herein appeal from the anticipation and obviousness rejections set forth above. Accordingly, Applicants expressly identify the claims in this appeal as claims 1-5, 7-21, and 23-27.

II. REPLY TO OFFICE’S RESPONSE

A. “SEPARABLE” & “SEPARATE” ARE DISTINCT CONCEPTS

Applicants concede their reliance on the argument that Williams discloses “separated” signals rather than the “separable signals” recited in the claims. Significantly, the Office does not contest this proposition—*i.e.*, that Williams teaches “separated” signals while the claims recite “separable” signals. Instead, the Office raises two arguments purporting to render the distinction immaterial. Each of these is spurious and will be addressed in turn.

First, the “[E]xaminer does not see a difference between ‘separable’ and ‘separated’ within the context of transmitted pulses.” (“Examiner’s Answer”, p. 6) That the Examiner does not see the difference does not mean that there is none. This is a simple matter of definition. “Separable”, by definition, means that the signals are “capable of being separated or dissociated.” *Webster’s New Collegiate Dictionary*, p.1048 (G. & C. Merriam Co. 1980). Note that this definition necessarily implies a distinction between “separable” and “separated” since something that is “separable” “*is capable of being separated.*” That is, the signals are not necessarily separated but are distinguishable in some manner so that they can be. “Separable” and “separate” are therefore two different states of existence.

Second, the Office misconstrues Applicants’ argument by attempting to graft some notion of “simultaneously” onto it. The Office more particularly states:

However, it would appear that the aforementioned passage differentiates separable from separated by using the wording "simultaneously" when referring to transmitted and received signals. In such a context (using simultaneously) there may be a distinction between the claimed "separable signals" and Williams et al's "separated signals" since then the use of separable is in conjunction with simultaneous transmission. However, this is not what is instantly claimed and thus, appellant's arguments are not commensurate in scope with what is actually claimed.

("Examiner's Answer", p. 6) This is not what Applicants argue.

To clarify, Applicants argue that the claims recite "separable" signals:

Each of the independent claims 1 and 17 recites "a plurality of separable, modulated Doppler invariant signals". The remaining claims 4-5, 7-9, 14-16, 20-21, 23-24, and 27 incorporate this limitation as a matter of law by virtue of their dependence. 35 U.S.C. §112, ¶4. It is this limitation that Williams fails to teach.

("Appeal Brief", p. 10) The import of the word "separable" is that the "modulated Doppler invariant signals" are "capable of being separated or dissociated."

The notion of "simultaneously" exemplifies a circumstance in which the "separable" characteristic of the claimed signals becomes interesting. And Applicants used it thusly:

Thus, the signals described here [in Williams] are "separated"—*i.e.*, separated in time—rather than "separable". In fact, they are separated in time *because they are not "separable."* Compare, for example, the discussion of "separable" in Applicants' disclosure in ¶[0031]:

Referring back to FIGS. 1A-B and 2A-B, the source 110 and/or the transceivers 210 may generate a plurality of modulated Doppler invariant acoustic signals 130, 215. *In one embodiment, the plurality of modulated Doppler invariant signals 130, 215 are separable.* For example, each of the plurality of modulated Doppler invariant acoustic signals 130, 215 may be modulated by a sequence to form an orthogonal Doppler invariant acoustic signal 130, 215, which may be transmitted and/or received while other orthogonal Doppler invariant acoustic signals 130, 215 are also being transmitted and/or received. ***In particular, the plurality of orthogonal Doppler invariant acoustic signals 130, 215 may be transmitted and/or received simultaneously.***

(emphasis added) There is no indication anywhere in Williams that the transmitted signals are separable, only that they are separated. At a minimum, nobody ordinarily skilled in the art would confuse the “separated signals” of Williams for “separable signals” as are currently claimed.

(“Appeal Brief”, p. 10) Note that nowhere in this argument do Applicants assert or imply that the claims recite “simultaneously”, or that the term “separable” necessarily implies “simultaneously”.

“Separable” and “separate” are therefore two different concepts, the former meaning that the signals are “capable of” becoming the latter. As noted above, the Office does not contest that:

- Williams teaches “separated”, rather than “separable” signals without any mention of “separable” signals; and
- the claims recite “separable” signals rather than “separated” signals.

Accordingly, because Williams does not teach all the limitations of the claims, it fails to anticipate any of claims 1, 4-5, 7-9, 14-17, 20-21, 23-24, and 27. M.P.E.P. §2131; *In re Bond*, 15 U.S.P.Q.2d (BNA) 1566, 1567 (Fed. Cir. 1990). Furthermore, because (1) the obviousness rejections rely on Williams to anticipate the recited “separable” signals, and (2) Williams does not, the cited art in combination fails to teach or suggest all the limitations. Accordingly, Williams, Altes, and Ashley in combination fail to render obvious any of claims 2-3 and 18-19. M.P.E.P. §706.02(j); *In re Royka*, 180 U.S.P.Q. (BNA) 580 (CCPA 1974).

B. ALTES & ASHLEY ARE OUTSIDE THE SCOPE & CONTENT OF THE PRIOR ART

The Office contests Applicants’ position that Altes and Ashley are outside the scope and content of the prior art. The Office presents two arguments in opposition. Both of these arguments are erroneous.

1. SONAR and Seismic Surveying are Different Fields of Endeavor

With respect to the first argument, the Office contends that the SONAR references Altes and Ashley are within Applicants’ field of endeavor. The Office states:

In this case, the radar/sonar field of Altes and Ashley et al are well within appellant's field of endeavor since sonar is directed to underwater sound (acoustic) transmission and detection which is exactly what the environment of appellant's claims pertain to, specifically, underwater acoustic ranging (transmission and detection). Appellant's argument that the present invention's field of endeavor (seismic survey) is not the same as that of Altes and Ashley et al (military) is also not convincing since both seismic and underwater sonar, whether military or commercial (i.e fish finders), are both in the class of underwater acoustic communications and well within the purview of one with ordinary skill in the art.

(“Appeal Brief”, p. 10) There are many errors here.

One error is manifest in the Office’s statement that the claims are directed to the same kind of underwater activity. This is fundamentally incorrect on a technical level. SONAR is a technology employed to monitor and explore what is happening or what is present *in the water column and is completely indifferent to what is beneath the ocean floor*. Marine seismic surveying, on the other hand, is only directed to what is present *beneath the ocean floor*. Indeed, in marine seismic surveying, the *only* interest in the water column is in all the things it is doing to interfere with the survey and degrade the results thereof.

Another error lies in the reliance of the classification of the two technologies in “underwater acoustic communications.” The Office’s classification of technology is not a part of the test. The test, which the Office states correctly, is whether (1) the reference is within Applicant's field of endeavor, or (2) is reasonably pertinent to the problem facing Applicant even though not within Applicant's field of endeavor. *In re Clay*, 23 U.S.P.Q.2d (BNA) 1058, 1060 (Fed. Cir. 1992). How the USPTO classifies the technology is not a part of the test. Even if one chooses to consider it, though, it is at best evidence of whether the reference is pertinent and completely irrelevant to the field of endeavor.

But, more importantly, the “underwater acoustic communications” that apparently form the basis for this classification happen very differently in the media of interest. Acoustic signals behave very differently beneath the seabed than they do in the water column. For example, acoustic signals travel as both pressure waves and shear waves in the seabed, but only as pressure waves in the water column. For another example, acoustic signals encountering a reflector beneath the seabed partially convert from one mode to the other—say, from pressure waves to converted shear waves. There is no counterpart to this in SONAR. There is a reason

why they do not call “SONAR signals” “seismic survey signals” and *vice versa*. It is because the two fields of endeavor are so very different.

2. The Claims are Directed to Seismic Surveying

The Office’s second argument is that the arguments are not commensurate in scope with the claims. In particular:

Finally, it is noted that appellant's argument with respect to the differences between seismic surveying and military applications of sonar is not fully commensurate in scope with the claims since the argument cites seismic surveying but the claims only mention of seismic "surveying" is the phrase that a receiver is positioned along "a seismic cable". This hardly suffices as seismic surveying.

(“Examiner’s Answer”, p. 7) This observation is immaterial. With respect to the question of whether SONAR is in the same field of endeavor as the present invention, the recitation of “a seismic cable” is sufficient to establish that it is not. The Office has yet to adduce any *evidence* that a “seismic cable” has *any* applicability in SONAR. As noted above, the two technologies are fundamentally different, and the equipment for each is designed accordingly. Thus, there is no use for a seismic cable in SONAR applications. This establishes a difference in the field of endeavor.

C. CONCLUSION OF THE ARGUMENT

Applicants therefore respectfully submit that the claims 1-5, 7-21, and 23-27 are allowable over the art of record. For both anticipation and obviousness, the art of record must teach or suggest all the limitations of the claims. As Applicants established above, none of the art, whether alone or in combination, teach or suggest “a plurality of separable, modulated Doppler invariant signals”. The Office relies on Williams, which actually teaches “separated” signals rather than “separable” signals—something the Office does not contest. Furthermore, in the obviousness rejections, the secondary references Altes and Ashley are outside the scope and content of the prior art. Applicants therefore request that the rejections be REVERSED.

XI. CONCLUSION

Applicant therefore respectfully submits that the claims are allowable over the art of

record. Accordingly, Applicant request that the rejections be REVERSED and the claims allowed to issue.

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Respectfully submitted,

Date: July 13, 2009

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